DOCUMENT RESUME

ED 110 744 95 CE 004 549

TITLE The Community is the Teacher: Experienced-Based Career Education.
INSTITUTION National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 75
NOTE 25p.

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS Academic Education; *Alternative Schools; *Career Education; Career Exploration; Community Involvement; Educational Innovation; *Experimental Programs; *High Schools; Information Dissemination; Occupational Information; Program Descriptions; School Industry Relationship; Secondary Education; Student Participation; *Vocational Development; Work Experience Programs
IDENTIFIERS EBCE; *Experience Based Career Education

ABSTRACT

Experience-Based Career Education (EBCE) has been developed as an experimental program to help high school students bridge the gap between study and experience, between the classroom and the community. The key to the EBCE concept is the adult working in any local community environment who is willing to share occupational knowledge of the real world with an interested student. EBCE is a voluntary, tuition-free alternative program of full-time learning resulting in an accredited high school diploma. It differs from traditional work/education programs by emphasizing broad career and intellectual goals rather than vocational skills, by using experiential education to convey academic learning, and allowing students a greater role in educational planning. Four educational laboratories were selected in 1972 to develop and test pilot versions of EBCE in a variety of economic and social settings: Far West School, Oakland, California; Academy for Career Education, Philadelphia, Pennsylvania; Appalachia Educational Laboratory, Charleston, West Virginia; Northwest Regional Educational Laboratory, Portland, Oregon. One of EBCE's future challenges is to help school systems to make the changes needed to accommodate this complex innovation. The forthcoming EBCE dissemination/service plan includes regional demonstration centers, State networks, and interagency cooperation at the national level. (EA)

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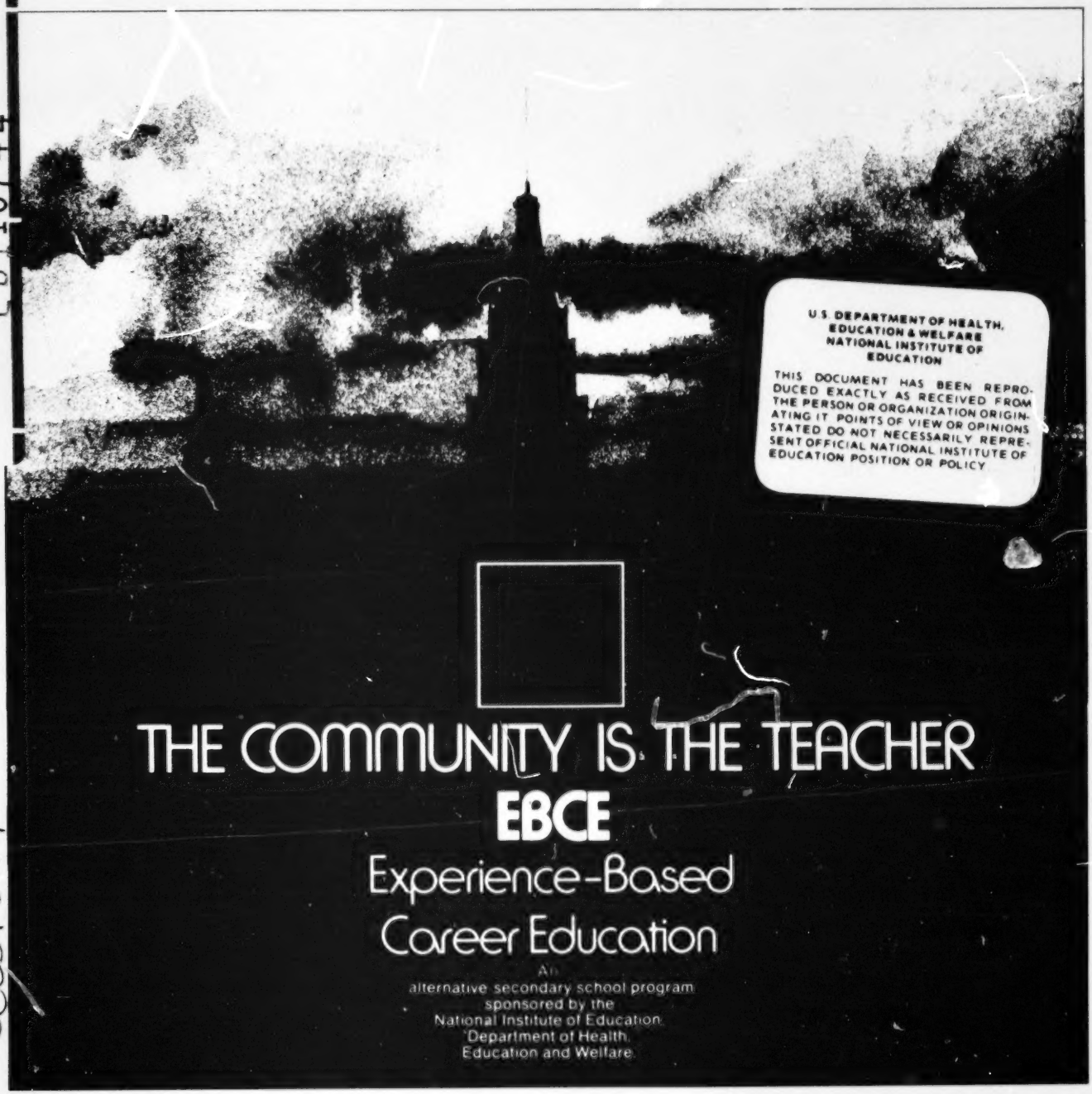

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THE COMMUNITY IS THE TEACHER

EBCE

Experience-Based Career Education

An alternative secondary school program sponsored by the National Institute of Education, Department of Health, Education and Welfare.

CE004549

THE COMMUNITY IS THE TEACHER

Experience-Based Career Education

Perhaps the most pressing problem facing education today is the widening gap between school and life. While thousands of students are sticking it out in high school, others are leaving—not because they can't handle the work, but because they can't find good reasons to stay.

Michael Malloy, in the *National Observer*, distills the findings of recent inquiries into secondary education in these words:

We have herded our young people into a hostile youth culture by keeping them in resentful and babyish dependence at an age when previous generations of Americans were learning responsibility and self-reliance in the real world of work.

EBCE – A New Alternative

The National Institute of Education (NIE) has developed an experimental program that promises to bridge the gap between study and experience, between the classroom and the community. That program is called Experience-Based Career Education (EBCE).

For the past two years, hundreds of students and dozens of educational specialists have worked in four locations across the country, developing and testing this concept in a unique joint venture with veterinarians, florists, union officials, patent attorneys, arc welders, social workers, cabinetmakers, journalists, teachers and others in the community willing to share their knowledge, experience and talents.

Supplementing the Classroom

The aim of EBCE is not to replace the classroom but to supplement it, to extend it into all spheres of our existence – social, academic, personal, occupational – to bring learning, living and working much closer together.

EBCE is an attempt to take the subject matter that students normally study, add many new ingredients (about people, jobs, self and the way communities work) and let high school students learn about them out in the community through direct experience with adults in all walks of life.

In the process students obtain academic credit, explore the real dimensions of many careers, learn much about who they are and what they want to become and master some of the skills they will need to negotiate successfully the world of adult living in America today.

Matching Up with Adults

Direct experience with many adults as they perform their daily activities is the key to the EBCE concept. Students studying politics test their new knowledge against the practical insights of legislators, judges, city managers and policemen. Students interested in a career in ecology study and work alongside scientists, technicians, investigators and secretaries. They discover that "ecology" is many jobs rather than one, that each job has its boredom and excitement and that the specific ecology careers that turn them on may require far more (or far less) education and experience than they expected.

They may find that careers in medicine or law are not as glamorous as TV shows portray them, that salespeople don't fit tidily into stereotypes or that to set up an easygoing lifestyle in a leather crafts shop requires some knowledge about bookkeeping and changes in supply and demand.

Convergence of Old and New Methods

The program is new, but the idea behind it is as old as apprenticeship – the learning method used since man first discovered the need to pass on technical know-how, social skills and human understanding. In a sense, EBCE looks back to a time when the entire community shared in the responsibility of opening an early door to adulthood.

At the same time, EBCE has incorporated features of many innovations already in use (work-study and co-op programs, action learning, schools without walls, competency-based certification and so forth) into a systematic approach to comprehensive learning. What distinguishes EBCE is the way it merges the worlds of work and school. The same learning activities that help students explore various careers also provide them with a comprehensive secondary education.

Reality-Based Learning

Using the entire community as a school, EBCE exploits the fact that human experience does not divide itself conveniently into compartments called "courses" or "subjects." EBCE enables a student to develop academic, social and occupational skills as they interrelate in real life.

An EBCE student, for example, may conduct biological research and experimentation (for science credit) while exploring a particular career in ecology (for career development credit). The student may write reports on both of these activities and have them evaluated for English credit. These "on-site" activities may be supplemented with tutoring, small-group discussion, texts or independent study activities in an EBCE learning center.

A student interested in medicine can learn mathematics skills as practical tasks create the need for them – by taking blood pressure in a hospital, reading cell counts in a serology laboratory or helping a veterinarian's secretary prepare billings. The student can also develop interpersonal skills by dealing with people as different as hospital kitchen supervisors and clinical caseworkers. Similarly, a student interested in the automotive industry may discover the need to know fractions to use certain tools or percentages to understand production ratios and auto sales.

In each case the students' choice and sequence of learning activities are geared to their own interests and abilities. But the learning activities are planned and structured carefully to yield specified learning outcomes.

The Community is the Classroom

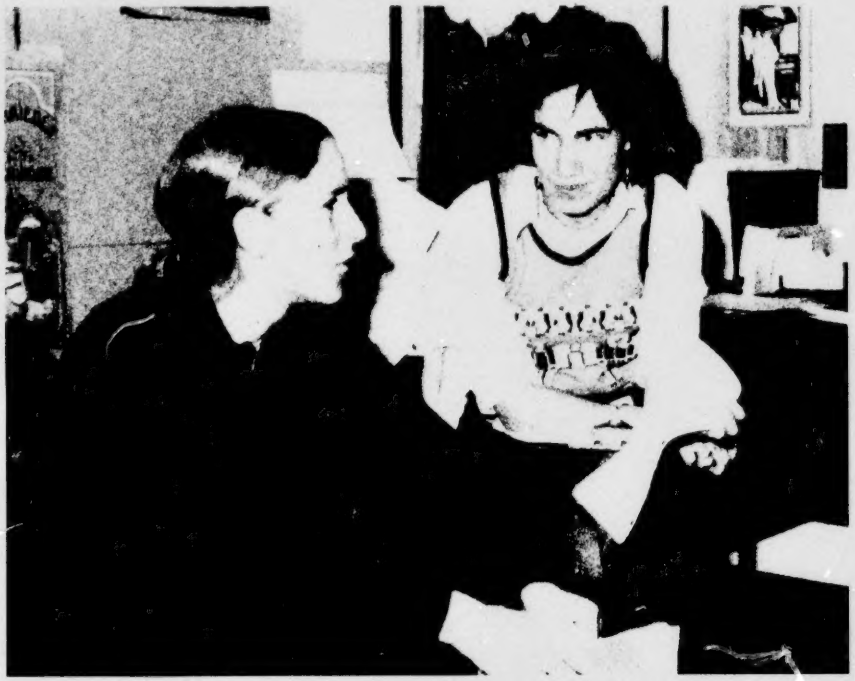
Participating employers and other community resources provide facilities, equipment, supplies and personnel to help implement the educational program. The key to the learning process is the adult working in any local community environment – someone willing to share occupational know-how and seasoned knowledge of the real world with an interested student.

The relationship is voluntary on both sides; its scope, terms and duration are negotiable – several days to several months or longer – depending on the availability of community resources and the educational needs, interests and abilities of the student.

What Kind of Student is EBCE For?

EBCE offers something for most students in American high schools today. It is a voluntary, tuition-free alternative program of full-time learning resulting in an accredited high school diploma. Students who graduate can enter college or training programs or seek employment. EBCE has something to offer

- the student who's ready to test "book learning" against the "real world" outside the classroom
- the student who has only vague notions of the "real world" and would like to explore career options through direct experience
- the college-bound student who wants to explore a tentative career choice before setting out on a post-secondary program of study
- the student who wants information and know-how to pursue a career interest, to meet basic job prerequisites, to acquire entry-level skills or to take the next step in career preparation



EBCE is Unique

EBCE differs from traditional work/education programs in several major ways. Unlike work-study and cooperative education programs operating in a vocational framework, EBCE does not emphasize vocational skills per se. Rather, it merges broad career, personal and intellectual goals.

In operation, EBCE is further distinguished from traditional work/education programs:

- EBCE is unpaid as opposed to paid experience
- EBCE includes career exploration and employer-site rotation as opposed to single work experience
- EBCE uses experiential education to convey learning in academic subjects
- EBCE allows a greater student role in shaping a personalized education plan
- EBCE is not targeted to dropouts, disadvantaged or other specific student populations

EBCE differs from contemporary nontraditional experiential high school alternative programs (for example schools without walls and action learning) not only in its much greater emphasis on career development but in its systematic integration of career, personal and academic skills into a program of total learning utilizing a range of community resources and people.

The Evolution of EBCE

Early in 1971, the U.S. Office of Education (OE) commissioned studies to explore major questions concerning the feasibility of EBCE. Four educational laboratories were selected in the spring of 1972 to develop and test pilot versions of EBCE in a variety of economic and social settings. The projects were transferred from OE to NIE in August of 1972.

The Far West Laboratory for Educational Research and Development set up its Far West School in the middle of Oakland's changing urban setting, where a white majority had given way in the past quarter century to an ethnic majority of blacks, Chicanos and Asians. Philadelphia's Research for Better Schools, Inc., established its Academy for Career Education in an atmosphere typifying the political and economic dimensions of the central city. The students at West Virginia's Appalachia Educational Laboratory had at their disposal state government offices in the capitol of Charleston as well as industrial resources in the surrounding rural areas. The Northwest Regional Educational Laboratory, in setting up its (CE)2 – Community Experiences for Career Education – in Tigard, outside of Portland, Oregon, combined suburban and rural learning environments.

DEMOGRAPHIC CHARACTERISTICS OF THE FOUR PROJECTS 1974-75 SCHOOL YEAR

	FWL	RBS	AEL	NWREL
Number of Students	110	275	120	60
Grade Levels of Students	10-12	9-12	11-12	11-12
Student Ethnic Characteristics	ethnically mixed	majority black	predominantly white	all white
Geographic Location/ Description	Oakland, California (urban)	Philadelphia, Pennsylvania (inner city)	Charleston, West Virginia (urban/rural)	Tigard (Portland), Ore. (suburban/rural)
Approximate Number of Employers	140	100	100	125
Number of EBCE Graduates	32	72	130	24

The four projects were given a set of common guidelines: the EBCE instructional system should be individualized and experiential, use as its locus employer/community settings, blend academic and occupational learning and accommodate a cross-section of the local high school student population. Within these boundaries the programs were free to develop their own approaches to staffing, curriculum development, credentialing, logistics and operating procedures.

There were many unanswered questions about EBCE but the initial feasibility studies had shown that most of them could be answered only through operational experience and that indeed only through the trial-and-error process of "directed development" could the pilot projects gain the participation of community people and develop the most effective means of recruiting, organizing and utilizing community resources for learning purposes.

By June 1973, the four EBCE projects had completed their first year and, in conjunction with the students' home high schools, awarded diplomas to graduating students. All four had developed and put in practice similar key elements that would then be refined during the second year:

- an assessment process that identifies the range of needs, interests and abilities of the entering students and that updates this assessment periodically during the year
- an integration of the traditional roles of teacher and counselor and a sharing of these roles with employer/community persons
- a basic skills component focusing on reading, writing and mathematics competency
- a career skills component that guides each student through a sequence of career-oriented learning activities at various levels of specificity (including exploration of a variety of specific career areas and in-depth investigation of particular jobs)
- a life skills component that helps students obtain a variety of real experiences in such areas as political and civic activity, personal finances, insurance, health and leisure-time activities
- a system for linking student activities to personalized learning objectives and performance measures

- an emphasis on using employer/community sites as the principal bases for learning, backed up by a special EBCE learning center, instructional materials and other supports (for example, tutors, community colleges)

- a method of identifying and analyzing which learning experiences are available from, and best provided by, particular community sites

- a method for translating EBCE activities into standard public school course equivalents to ensure that students can earn a diploma and present the kind of credentials that can be evaluated by college admissions offices and employers

As the prototype projects developed, important differences surfaced relating, for example, to the delivery of basic skills, the nature of the counseling process, the role of the community in program formulation and policymaking and the type of supportive instructional materials. Each of the four EBCE projects is now sufficiently distinctive in design and operation to be independently valuable for both research and evaluation purposes and to provide a significant consumer alternative for potential EBCE adopters or adapters.

In September 1974, the four projects began a third full year of program operations, including refinements of product documentation for potential adopters, further cost reduction and external evaluation of the program.

Perhaps the best way to gain a clear sense of how EBCE works is to look at it through the eyes of the adults and students who participate in it. There is no such thing as a "typical" EBCE experience; the purpose of the two vignettes that follow is to provide concrete examples of EBCE's essential features.

A Student's Involvement: Lee Miller, Class of '74

Lee Miller came to EBCE at the beginning of his senior year. Like many others he was bored to death at his high school and complied with dreary assignments only for the grade. He liked to chew things over slowly in his mind and work at his own pace. Because of the pressure to be "right" and the "authority-trips teachers are on," he spoke in class only when forced. He was the kind of student who is inevitably labeled with the phrase "doesn't work to full capacity."

Working with the EBCE diagnostician, Lee and his learning coordinator agreed on a tentative profile as a basis for planning: his writing ability was very good, his math skills needed improvement, he was most comfortable "taking his time" doing things and was a little shy about meeting people. He was especially interested in politics, psychology, relating to other people, and critical thinking.

In getting acclimated to EBCE and finding out what the program's learning resources are and how to use them, Lee began to realize that while he would be given a great deal of freedom he would have to exercise more initiative and responsibility than he ever had before.

Getting Started

The orientation/exploration phase of the EBCE program allows students, especially those with no definite career interest, to "poke around" in the community and get a feeling for what's going on. Since Lee was reticent about phoning resource persons to set up appointments himself, it was agreed he would begin by going through the scheduled orientation and exploration at Southern Pacific Railroad.

During the four half-days of these activities Lee and his friends spent time in the claims office, engineering department, main office and crew dispatching office. They met a yardmaster, tower clerk, perpetual inventory car location clerk, rate clerk and billing clerk, observed them at work and asked them questions about their jobs. They were shown how computers are used to keep track of every car and how to program a card. Out in the yard they talked to brakemen, switchmen, engineers, went through control towers and interlocking towers and rode on a train.

In the offices the routine and monotony of so many menial jobs boggled Lee's mind. When he asked one of the clerks why he did it, the man answered frankly: "I need the money." But out in the yard things were more relaxed. One carryall driver who transports crews told Lee that the railroad was part of his family; he had been with Southern Pacific for 30 years and both his brothers were now employees, too.

In one of the advisor-student rap sessions Lee commented that at first he thought it was ridiculous that 20-some unions at Southern Pacific could fracture the tasks into absurdly small pieces (for example, after a carpenter had drilled through a piece of wood he had to call an iron worker to drill through the metal behind it). But a union man had explained the necessity of protecting the workers' rights and cited examples of how "rotten" the working man's life was before labor had organized. He agreed that so many unions could be cumbersome but felt the benefits far outweighed the inconvenience.

Lee was intrigued by the problem and his learning coordinator recommended a good book on the history of unions. Lee had been alert for minority discrimination but found a lot of black and Chicano people working in the stations he visited. One of the black yardmasters had told him, "Not so long ago we would have been allowed only janitors' or porters' jobs."

Exploration Continues

In another exploration sequence, this time at Moore Business Forms, Lee got acquainted with his first resource person, a salesman named Don Stone. Don showed Lee how forms are designed to meet the particular needs of clients in various kinds of business. It turned out to be more creative than Lee had supposed: you need to be able to visualize problems, use drawing techniques and understand spacing and layout. And it was complex: with the forms used on computer equipment one one-hundredth of an inch becomes a critical factor. Don let Lee try his hand at improving the design of a form currently in use.

Lee accompanied Don into the field and discovered that Don had several long-term relationships with clients and seemed genuinely concerned with their needs. Watching him make presentations, Lee was impressed with Don's ability to do on-the-spot designing, probing the client for enough details to make the form more efficient than the client had called for originally.

But most important to Lee, Don treated him as an adult. Over coffee he explained his business philosophy: "If you're concerned with making money you won't be good at your job. You have to really want to help the people who buy your services." They rapped about the upcoming mayoral election and the Watergate hearings. Lee was not used to being talked to as an equal or feeling that his questions were as reasonable and as important as Don made them seem.

Projects Integrate Learning

Nothing had occurred yet to kindle an interest strong enough for Lee to think about forging a learning project of his own, so he decided to do a "ready-made" one. Partly to explore careers in medical technology and partly to satisfy the science credits he needed for his high school diploma, he arranged to complete a science project by going to Western Laboratory, which performs clinical diagnostic work for hospitals. The broad goals of the project were to learn scientific methods and concepts as they are applied in a variety of practical situations.

At Western Laboratory Lee worked with director Sarah Buckner and three technicians over a period of several weeks. As a prerequisite to his learning experiences there he was asked to read several chapters of a college text called **Clinical Diagnosis and Laboratory Methods**, which he found "advanced but challenging." He was instructed in techniques used in electrophoresis and hematology. He learned how to run chemical tests for pregnancy, took a culture from his own throat, incubated it, performed a complete analysis and in the process picked up some math skills in ratios and percentages. He also analyzed a sample of his own blood, from which he concluded that his diet was too high in carbohydrates.

Assessing Interests and Needs

Lee was fascinated by what he learned about the blood system but he disliked the regimented, formal atmosphere at the medical laboratory and marveled that the technicians weren't bored by humdrum tasks like doing cell counts. After completing enough learning objectives to satisfy his science credits Lee decided to go on to something else.

After his experiences at Southern Pacific, Moore Business Forms and Western Laboratory, Lee felt he'd passed his initiation. He was more at ease in going out and meeting people, asking them questions, and he felt challenged by the increasing responsibility he was expected to assume for his decisions. The idea of getting into something he really cared about didn't seem so difficult now.

In talking with his learning coordinator it had recently occurred to Lee that a number of separate things – his enjoyment of descriptive writing, his critical opinions on what constitutes a good disc jockey or sportscaster, the pleasure he took in analyzing films – added up to some kind of affinity for the field of communications. He decided to develop a learning project in the communications and media field.

After mapping out a tentative plan with the help of his learning coordinator he interviewed the editor of the **Barb**, a radical newspaper. The editor called it "kind of a rag" and said he did it mainly for fun. He explained proofing symbols to Lee, had him copy-edit a short article, then went over it with him.

At another newspaper a reporter named Tom Kenley worked more intensively with Lee, showing him the techniques of interviewing, writing leads, trimming copy and getting at the differences in style between news copy, feature articles, sports and society page material. Lee told Tom how he had worked as a volunteer cleaning up an oil slick on the beaches and was later upset to read newspaper accounts that falsely minimized the damage. Tom talked at length about slanted or biased coverage, the difficult problem of fact versus opinion.

At the KPFA radio station Lee spent some time with Bob Stinson, a broadcaster, and Kay Patmont, a disc jockey. In the newsroom he learned how UPI facilities are used and how news is edited for broadcast. He was shown how to operate all broadcasting equipment (control board, turntables, tape machines) and learned how they're used simultaneously for different effects. He got a clearer notion of why broadcasters have their own style and concluded he could do it for a living only if allowed to extemporize or be a "personality" and not read prepared text. He found the disc jockey's schedule of commercials and music pretty boring.

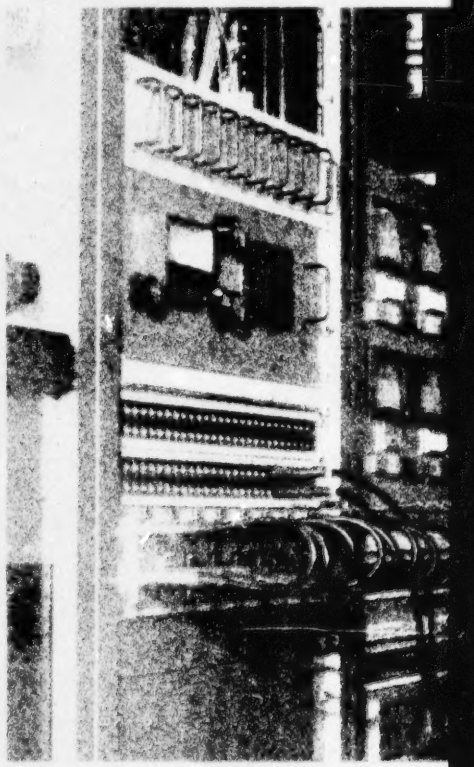
Zeroing in for Concentrated Study

It was while talking to Tom Kenley about the coming election for mayor and how a former Black Panther's candidacy might throw a wrench into things that Lee got the idea of "covering" the election as a reporter. Lee's learning coordinator pointed out that it sounded like a good entry into a study of politics. He agreed to pursue his career interest in journalism, focusing on particular aspects of the campaign while acquiring some basic firsthand understanding of city government, local politics and the careers associated with government. Tom Kenley agreed to work closely with him.

He made an appointment with George Elia, staff assistant to the city manager, who became Lee's other major resource person for this project. At their first meeting Mr. Elia made a number of suggestions, including attending a City Council meeting later that week. While getting acquainted they toured the offices at City Hall, where Mr. Elia had spent 12 years.

Mr. Elia's current responsibility was to process complaints that had gone through channels without satisfactory results. Lee learned how a citizen carries a grievance through against the city and got some idea of the many types of complaints there are.

Although Mr. Elia clearly enjoyed his work and seemed good at it, Lee found parts of it unattractive: he couldn't see himself spending half his time on the telephone listening to people's beefs. But he liked the flexibility of Mr. Elia's schedule. His time was his own. No matter what his tasks, he decided which took priority and when they had to be finished. Lee was impressed by how this freedom contrasted with Sarah Buckner's job at Western Laboratory, where everyone worked under tight deadlines and always seemed in a hurry to get things done on time.



It was becoming clearer to Lee that the career he eventually chose must allow him a certain amount of mental elbow-room. He couldn't live with someone breathing down his neck.

Based on some suggestions by Mr. Elia and using the techniques he had picked up from Tom Kenley, Lee began to interview various candidates and officials, including Edward Doggin, legal advisor to the City Council; Ron Green, candidate for mayor; and his campaign manager, Paul Novelli.

Before long Lee was able to formulate the major outcomes of his project:

1. I will describe in outline form the following three occupations: staff assistant to the city manager, political consultant and city attorney. Each outline will include: roles and functions of the job; working conditions; monetary, psychological and other rewards; long-term job outlook; qualifications; and features of the job as they relate to my own interests. These outlines will be reviewed by Mr. Elia and Mr. Novelli for correctness.

2. I will write a 500-word newspaper article acceptable to Mr. Kenley in which I will compare the values and other factors that prompted Green, Reading and Sutter to run for mayor. From this comparison I will draw conclusions about the values and factors that might cause anyone to run for mayor. This article will be based on my interviews with Mr. Green and Mr. Novelli and first-hand observation at the Channel 2 "Head-On" debate.

From his experiences, interviews, discussions and reading, Lee drew the following conclusions:

1. Green lost the election in part because of low recognition.
2. The victor, Reading, was able to carry the "Bible Belt" in the city.
3. Seale was a glamorous figure but his association with the Black Panthers caused him to lose one-third of the black vote.
4. The city's white middle- and upper-class had the largest turnout and therefore largely controlled the election.

He particularly enjoyed constructing a voter precinct map; it enabled him to visualize how socioeconomic and ethnic groups voted by neighborhood.

Lee claimed that two minor achievements resulted from his learning experiences in this project: after getting citations for various malfunctions of his car he was able to clear himself through a campaign of letters and marshalling of evidence and the citations were voided; he also dealt successfully with the Traffic Department to get a permit to reroute traffic around a city block to provide street parking space for a year's end party for EBCE staff and students.

Lee summed up his experiences thus far: "I'm more aggressive and efficient about getting things done. I'm less shy and much more open to people. I feel I know what's happening out in the world." He was thinking seriously of majoring in journalism. He had concluded that although journalists have to meet tight deadlines there was plenty of "mental elbowroom."

The Community's Involvement: Bob Woodward, Employer Instructor

Bob Woodward always felt that his education–12 years in public and parochial schools and three years in the Navy–had been an important factor in his success as owner and manager of an industrial electrical equipment service and repair business. With steady support from his family Woodward had graduated from high school with good grades; he had taken advantage of Navy programs to gain specialized training in electronics and was certified by a good private trade school after his discharge. His own experience had given him a healthy respect for the benefits of practical education before he ever heard of EBCE.

Woodward's first exposure to EBCE came at a service club meeting when a banker friend mentioned that he had recently "certified" five students in a simple-sounding skill he knew many persons lacked: the ability to manage checking and savings accounts.

An Intriguing Idea

Woodward was intrigued that a school program would use people in the working community to "teach" students, and he told his friend that he would be interested in becoming involved himself.

Two days later he received a call from Ellen Robbins, an EBCE employer relations specialist. She explained that the program reaches out to adults from business, labor and the community-at-large and asks for their involvement in many different ways.

The most extensive commitment employers can make is to open up their places of business as learning sites for students. Someone at the business is identified as the employer contact who can arrange orientation and learning activities lasting anywhere from a few days to three months. Employer instructors work with students on a part-time, one-to-one basis, supervising their activities, teaching them about specific career areas and helping them learn some of the basic skills of communications, reading and mathematics.

Community resource people also offer advice on program policy or conduct monthly student seminars, volunteer to tutor students in special subjects or, like the banker, help students learn specific skills and certify their accomplishments. In all these interactions resource people are encouraged to provide career information and guidance.

Analyzing Learning Potential

Woodward and Ms. Robbins then sat down to analyze the learning potential at the shop. Together they answered such questions as: What types of mathematics, reading and other basic skills are used on the site? What kinds of relationships are encountered with other workers there and with customers? What working conditions need be considered? What tools, equipment and materials are used and how would all this reinforce a student's learning experiences?

Using this information a learning manager or coordinator at the EBCE learning center wrote up a number of possible objectives and several alternative projects that would guide the students' activities at the shop. Woodward would be asked later to ratify the objectives to make sure they were both reasonable and attainable.

Based on what he knew so far Woodward was interested. He signed an Indemnity Covenant and Letter of Intent, which assured him that when his shop was used as a learning site liability would be assumed by the EBCE program. As a cooperating employer he retained all rights to set limitations on time involved, equipment used, materials consumed and so forth.

Two Students Interested

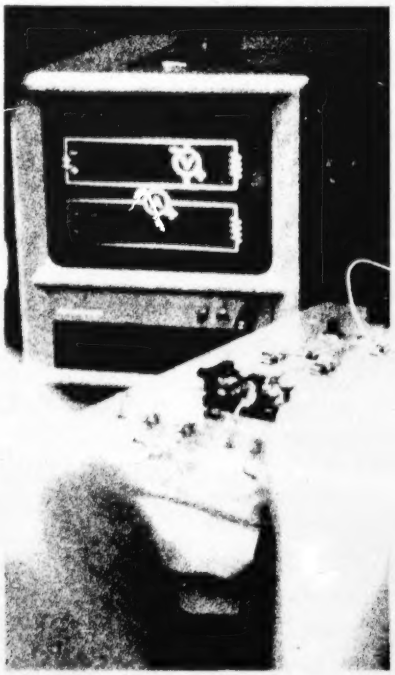
Soon Ms. Robbins had sent him two students for three- to five-day explorations–a boy who aspired to be an electrical engineer and a girl who had explored health careers in her previous year in EBCE and learned that hospitals needed technicians able to operate and maintain complex medical equipment.

Woodward was impressed by the support he received from EBCE staff as he worked with his students. He was contacted regularly and fed back information on the students' progress. In addition EBCE held four developmental sessions for cooperating community resource persons during the year. These sessions revolved around aspects of the program but also pertained to basic employee supervision questions he encountered daily.

One discussion entitled "How to Make Student Explorations Tantalizing, Timely and Truthful" led Woodward and other employer instructors and EBCE staff members to develop ideas on how best to help students perceive accurately the working conditions on a community site and keep them exploring all aspects of that career area.

Another employer development session included a "fishbowl" exercise: three employers, three labor leaders, two EBCE staff and a student discussed the issue of insuring that students do not become productive workers on a site since they are there as learners, not paid employees.

Other sessions during the year included a discussion of employer roles in student guidance and counseling, an overall evaluation of how well the program was working and an informal meeting with parents of EBCE students to let employers share directly with parents their perceptions of student growth.



Instructional Objectives Vary

The learning potential at Woodward's site was rich. For science skills one student's objective was to explain the theory of electricity in enough detail to illustrate a general understanding of its principles. To do so he prepared a series of cartoons that portrayed the theory of electricity and tested them on a class at a nearby grade school.

The other student agreed to demonstrate her understanding of the relationship between voltage and the capacities of various equipment to translate this energy into work. Working with Woodward's installation technician she drew up a profile of possible damage to various pieces of equipment resulting from excess voltage.

An objective for one student's mathematics project was to demonstrate arithmetic computations involving amperage and wattage. Thanks to some coaching from a college student the student interested in becoming an engineer learned basic slide rule techniques and was able to check several simple computations on a set of specifications Woodward gave him. He also learned to operate a desk calculator to check customer billings against the clerk's monthly financial statement. Meanwhile the other student worked closely with Woodward, analyzing inventory records and projecting the ordering necessary to stock the shop for the upcoming 18 months.

Both students took customer calls during staff coffee breaks and learned to record requests accurately. Woodward felt students should understand how to use the telephone effectively since it is an important business tool.

The EBCE learning manager determined that one student needed to practice English composition. With Woodward's help he prepared an objective that called for the student to draft a letter to customers explaining why the shop needed to increase prices. Woodward felt the task would help the student understand some of the problems a manager faces in times of inflation. The student's draft was good enough for Woodward to use in his final version.

One objective in reading and writing skills was for the students to read a series of recent pamphlets describing electricity as an energy resource and explain how it can be conserved. One student developed an essay calling for more extensive use of solar energy. Woodward posted the essay on his employee board and then submitted it to the newsletter of his service club (to whose meetings he had taken the students as a means of showing them the ways small businessmen are involved in community affairs).

Moving On

After six to eight weeks' experience with these two students, who moved on to other sites in the community, Woodward agreed to host other students as well. He keeps posted on "his" students' progress and activities via the EBCE employer newsletter and frequent contacts with the employer relations specialist. Woodward was also instrumental in recruiting two of his friends—one an insurance agent, the other a dentist—as employer instructors.

Evaluation Activities

Since program operation began in the fall of 1972, EBCE projects have had internal evaluation staffs working at each site gathering information that has helped project directors deal with problems arising from the daily operation of their programs:

- Do early orientation sessions provide a solid enough foundation to allow students to begin their individualized experiences in the community? Are instructional materials available when needed and are they useful to students and staff?
- Are students, staff, parents and community resource people receiving enough feedback about their roles in the program?
- Is there a sufficiently broad range of careers represented among cooperating employers to provide students with an accurate view of their fields of interest?

In addition to providing answers to these and other questions, EBCE evaluators have been equally concerned with how well students are reaching program objectives in the areas of career awareness and development and interpersonal and basic skills.

Because EBCE is designed to achieve a wide range of objectives in the context of a student's own individualized career and academic exploration, no single research technique or methodology was adequate. A combination of evaluative approaches has been employed, therefore, including traditional achievement and attitudinal testing, case studies and other measures.

Findings

Evaluation results from the first two years of development and operation are promising. The four EBCE projects are discovering new ways to help adolescents handle the psychological, social and economic complexities of modern life. Students appear to be reaching their objectives; most of the parents, community resource persons and local school district personnel involved in the projects are enthusiastic about the results and have maintained their interest and involvement.

Although basic skills are important, it was not an initial goal of the EBCE program that students demonstrate dramatic improvement in these skills or attain levels higher than those attained by a random sample of high school students. Yet data from the standardized achievement tests have revealed that in three of the four projects there was significant growth in reading and mathematics; in the fourth project, basic skills gains were also recorded but were not statistically significant. No significant differences in growth were found between EBCE students and students in traditional high school programs.

To test career awareness three projects used a pre- and post-administration of the attitude section of the Career Maturity Inventory (although evaluators felt that the content of the CMI was not entirely applicable to EBCE and began developing other techniques for measuring students' attitudes toward careers). In all three projects EBCE students made significant growth over the year; in two of these projects the growth of the EBCE students was significantly better than that of students in traditional high school programs.

Students

Student opinion of EBCE was very positive. Students felt that they were more motivated to learn than they had been in their regular high schools (90% of th[illegible]spondents); that there was more opportunity in EBCE to learn about occupations (95%) and to gain insights that will help them secure jobs in the future (90%); that there was more opportunity for general learning and for assuming responsibility and learning to work with others (85%).

In most cases, the proportion of students dropping out of EBCE has been lower than the dropout rate for the regular high schools and the attendance rate of EBCE students appears to have improved over their attendance the year before joining the project. Some students, however, did feel that EBCE could be better organized and that they did not receive an adequate response from community resource persons about their progress.

Graduates

In their first two years the EBCE projects graduated about 260 students. Of the 50 students who graduated at the end of the first year (1973), almost 50% are enrolled in college, 15% are going to college and working part-time and the remaining 35% are working full-time. Virtually all of the first-year graduates agreed that EBCE prepared them for work and 80% of those in college felt EBCE prepared them for college.

Almost without exception, graduates indicated that EBCE prepared them to understand themselves better and to deal more effectively with others. In one project where EBCE graduates were compared with a random sample of high school graduates, EBCE students were more likely to pursue higher education, they were more firm in their plans and a larger proportion of them felt that their school experiences were helpful in career decision making. The career plans of the 1974 graduates are similar to the actual experiences of the first-year graduates.

Parents

Parental reaction to EBCE has been excellent. Ninety percent of parents interviewed said they had noticed positive changes in their child that they felt resulted from the program; at least 85% thought that EBCE was an improvement on their child's past school experience; over 90% said that EBCE provided more opportunity for their son or daughter to learn about occupations.

Nine of ten parents surveyed felt that the program was particularly effective in teaching their children to communicate with others in a mature way, to assume responsibility, to work with others and to have a positive attitude toward themselves. About 15% of those responding to evaluators' questions indicated concern about the adequacy of their communication with EBCE staff and about their child's academic readiness for college.

Resource Persons

Resource persons in the community, all of them volunteering time, equipment, facilities and staff to EBCE, are also enthusiastic about the program. When asked if they would continue to participate in EBCE the following year only a few of the hundreds who had worked with the four projects said they would not. Over 90% of the resource persons surveyed also said they would recommend EBCE participation to others.

While employer/community resource people did not rate EBCE as highly in reaching objectives as did parents or students, they did feel that the program was particularly effective in making students more aware of career opportunities and better able to work with others.

Outside Evaluation

During 1974-75, internal staff evaluations at the four EBCE sites will be supplemented by a thorough external evaluation by the Educational Testing Service. In addition to focusing on the development and use of instruments to measure student skills, the Educational Testing Service will use an anthropological approach in analyzing how students learn in the highly individualized setting in which EBCE experiences take place. The results of this Educational Testing Service evaluation will allow EBCE projects to be compared and contrasted with other secondary school programs. The firm will also prepare a set of evaluation instruments and guidelines for school systems interested in adopting EBCE in the future.

EBCE Looks to the Future

From the beginning, EBCE developers have been pondering the promise and problems of moving EBCE into public schools. The ultimate payoff for any major developmental effort is a high rate of adoption by the intended users. In terms of the program's promise, all those who have worked closely with EBCE realize that a systematic and innovative process has been developed that is making students, staff and the community much more excited about learning.

Their conviction has been bolstered by the evaluation data cited earlier and by favorable judgments from experts like Dr. Keith Goldhammer, dean of the College of Education, Michigan State University, who chaired an independent review group* that spent more than a month critiquing the four EBCE projects. In a speech at The Ohio State University Dr. Goldhammer commented on the future of EBCE by stating:

Somewhere at sometime someone said, 'I have seen the future, and it works!' I think that is how I felt as I had this opportunity to see the EBCE programs in operation. Can you picture randomly selecting 150 students from any high schools within the country and finding genuine enthusiasm, a feeling of belonging, a feeling that school exists for them, a feeling that they are recognized as human beings and they can do within the schools what is important for them to do? We did interview approximately 150 EBCE students, and we didn't find one who was disaffected by what he was doing.

EBCE has come a long way, but one of its greatest challenges lies ahead: how can school systems be helped to make the changes needed to accommodate a complex innovation like EBCE? Many less complicated educational change models supported by federal funds have faltered for such reasons as inadequate school system input, late or deficient dissemination planning, poor installation materials and support for adopters, insufficient support from the public education community and just plain overpromising on results.

EBCE is attempting to avoid these pitfalls by early dissemination planning and collaboration with potential adopters of EBCE. A major goal of EBCE is service to school systems seeking additional and better ways to educate youngsters. The EBCE program, while first reflecting the developmental needs of youth, has attempted to take account of the operating needs and realities of the potential adopters – the school systems.

*Other members of the team were Charles Bowen, director of educational development for IBM; Claude Brown, research and education director, Teamsters' Local 688; Glenys Unruh, president, Association for Supervision and Curriculum Development; and Richard Graham, director, Center for Moral Education, Harvard University.

The EBCE designers have attempted to meet school needs by developing a highly adaptable program that can be modified and incorporated to fit local situations. EBCE can be installed as an alternative within the school building or operated as a satellite program in an external facility like a storefront or an office building. It can be adopted as a whole model or adapted piecemeal to supplement the existing curriculum.

Some schools, for example, may only want to adopt the EBCE technique that permits systematic analysis of community work sites for student learning opportunities and apply it to their existing work experience programs.

Over the past year more than a hundred representatives from school systems have been brought to the four prototype locations to conduct critical reviews of the EBCE projects and have participated in assessing the technical assistance materials and staff training needed to implement EBCE in their school systems.

Recommendations from public educators are helping shape the design of user materials being assembled to serve as highly adaptable, practical manuals for adopters' convenience. The installation needs identified by school people will serve as a foundation for a forthcoming EBCE dissemination/service plan.

Many of the essential elements of a long-range EBCE dissemination plan have already been identified, including the establishment of regional EBCE demonstration centers, the completion of a multimedia installation package and the development of state dissemination networks. Demonstration centers at the current EBCE prototype locations are necessary to provide technical assistance, live program demonstrations and staff development support to the first generation of school systems adopting EBCE. A balanced package of descriptive and procedural materials will greatly enhance implementation of the program and allow for partial adoption in some cases.

The EBCE projects have had solid regional and state ties since their inception and one of the basic elements of the plan will be to improve operating linkages between regional education laboratories, state departments of education, intermediate school districts and teacher training institutions to aid in the dissemination and installation of EBCE.

At the national level a major thrust of the EBCE dissemination/service plan is interagency cooperation between NIE, OE and the U.S. Department of Labor (DOL). Both OE and DOL are major sponsors of work experience and manpower programs and are interested in exploring the potential of EBCE to enhance the education/work alliance. EBCE's conceptual flexibility should permit it to be integrated with programs like work-study, cooperative education or schools without walls, depending on the needs of the adopting school system. It is therefore quite conceivable that much of the EBCE demonstration and outreach effort will be a joint venture involving several federal agencies as well as states and private organizations.

While much of EBCE's future effort will be directed toward school system implementation, a second major activity will be a series of controlled field tests to study the EBCE concept in greater depth to determine the conditions under which it works best and why. For example, prescribed field settings may be arranged to identify which elements of EBCE work best – for what kinds of students, at what age levels and for what length of time. In the process of generating answers to these questions the field test sites will also "pilot" the existing program and materials to permit refinement of the EBCE model. Much will also be learned about the installation process during field testing that could benefit future adopters (for example, the kinds and qualities of technical assistance needed). Because of the promise of EBCE and NIE's mandate to conduct systematic research and development, NIE will continue to investigate such areas as the experiential dimension of EBCE and its effective utilization of community resources and will make these findings known to practitioners for the improvement of education.

EBCE appears to be "working" now for many types of students in a variety of settings. Whether or not it works in the future, as Dr. Goldhammer suggests, really depends on the willingness of schools to modify established practice to meet the diverse needs of today's adolescents and on the quality of the EBCE dissemination and assistance effort to support that change.

For further information on how EBCE is being developed and implemented in actual test situations, specific inquiries should be directed to the participating educational laboratories:

Appalachia Educational Laboratory, Inc.
P.O. Box 1348
Charleston, West Virginia 25325
Harold Henderson, EBCE Program Director

Far West Laboratory for Educational Research and Development
1855 Folsom Street
San Francisco, California 94103
Robert Peterson, EBCE Program Director

Northwest Regional Educational Laboratory
710 S.W. Second Avenue
Portland, Oregon 97204
Rex Hagans, EBCE Program Director

Research for Better Schools, Inc.
1700 Market Street
Philadelphia, Pennsylvania 19103
Louis Maguire, EBCE Program Director

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Experience-Based Career Education (EBCE) is one of several research and development programs at the National Institute of Education designed to bring the worlds of education and work closer together. To find out more about how these programs are expanding educational and career opportunities for young people and adults alike, write:

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